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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
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08/737,042 10/30/96 HEED

B C-35620

DVORAK AND TRAUB  
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QM01/1027

EXAMINER

LEO, L

ART UNIT

PAPER NUMBER

3743

DATE MAILED: 10/27/99

**Please find below and/or attached an Office communication concerning this application or proceeding.**

**Commissioner of Patents and Trademarks**

# Office Action Summary

Application No.  
**08/737,042**

Applicant(s)

Heed

Examiner

**Leonard R. Leo**

Group Art Unit

**3743**



☒ Responsive to communication(s) filed on April 23 and August 6, 1999

☒ This action is **FINAL**.

☐ Since this application is in condition for allowance except for formal matters, **prosecution as to the merits is closed** in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

A shortened statutory period for response to this action is set to expire 3 month(s), or thirty days, whichever is longer, from the mailing date of this communication. Failure to respond within the period for response will cause the application to become abandoned. (35 U.S.C. § 133). Extensions of time may be obtained under the provisions of 37 CFR 1.136(a).

## Disposition of Claims

☒ Claim(s) 5 is/are pending in the application.

Of the above, claim(s) \_\_\_\_\_ is/are withdrawn from consideration.

☐ Claim(s) \_\_\_\_\_ is/are allowed.

☒ Claim(s) 5 is/are rejected.

☐ Claim(s) \_\_\_\_\_ is/are objected to.

☐ Claims \_\_\_\_\_ are subject to restriction or election requirement.

## Application Papers

☐ See the attached Notice of Draftsperson's Patent Drawing Review, PTO-948.

☐ The drawing(s) filed on \_\_\_\_\_ is/are objected to by the Examiner.

☐ The proposed drawing correction, filed on \_\_\_\_\_ is ☐ approved ☐ disapproved.

☐ The specification is objected to by the Examiner.

☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. § 119

☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).

☐ All ☐ Some\* ☐ None of the CERTIFIED copies of the priority documents have been  
☐ received.

☐ received in Application No. (Series Code/Serial Number) \_\_\_\_\_.

☐ received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\*Certified copies not received: \_\_\_\_\_

☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

## Attachment(s)

☒ Notice of References Cited, PTO-892

☐ Information Disclosure Statement(s), PTO-1449, Paper No(s). \_\_\_\_\_

☐ Interview Summary, PTO-413

☐ Notice of Draftsperson's Patent Drawing Review, PTO-948

☐ Notice of Informal Patent Application, PTO-152

--- SEE OFFICE ACTION ON THE FOLLOWING PAGES ---

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Applicant's arguments with respect to claim 5 have been considered but are moot in view of the new ground(s) of rejection. Claim 5 is pending.

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claim 5 is rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The specification lacks an adequate written description of the invention with respect to the angle of the corrugations and the resulting flow resistance.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 5 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

It is not clearly understood how a corrugation angle of "no more than" (i.e. less than) 45 degrees provides a greater flow resistance in the lengthwise direction.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

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(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 5 as understood is rejected under 35 U.S.C. § 103(a) as being unpatentable over Davis in view of Hultgren.

Davis discloses a recuperative heat exchanger comprising a casing defined by walls 11-16 having inlet and outlet ports 21, 21', 18, 22; a heat transfer package 30, 31 having a plurality of rectangular planar elements 36 with longitudinal corrugations extending the entire length and width thereof, the planar elements folded in accordion-like manner; but does not disclose adjacent planar elements forming a crossing pattern with the corrugations.

Hultgren discloses a recuperative heat exchanger comprising a casing 2 having inlet and outlet ports 7-10 along the lengthwise dimension thereof; a heat transfer package 11 having a plurality of connected rectangular planar elements with corrugations 17 folded in accordion-like manner; wherein the corrugations are angled at 5 to 20 degrees with respect to the lengthwise direction forming a crossing pattern between adjacent planar elements for the purpose of improving heat exchange while minimizing pressure loss.

Since Davis and Hultgren are both from the same field of endeavor and/or analogous art, the purpose disclosed by Hultgren would have been recognized in the pertinent art of Davis.

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It would have been obvious at the time the invention was made to a person having ordinary skill in the art to employ in Davis corrugations angled at 5 to 20 degrees with respect to the lengthwise direction to forming a crossing pattern between adjacent planar elements for the purpose of improving heat exchange while minimizing pressure loss as recognized by Hultgren.

The rejection in view of Seidel has been withdrawn, since the claim limitations with respect to angled inlets and outlets are cancelled by the amendment. Likewise, the rejection in view of Usher has been withdrawn, since the claim limitation with respect to corrugation angle at least 45 degrees is cancelled by the amendment.

No further comments are deemed necessary at this time.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event,

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however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication should be directed to Leonard R. Leo whose telephone number is (703) 308-2611.

Any inquiry of a general nature or relating to the status of this application should be directed to the Technology Center 3700 receptionist whose telephone number is (703) 308-0861.



LEONARD R. LEO  
PRIMARY EXAMINER  
ART UNIT 3743

October 25, 1999